WHAT IS CLAIMED IS:

1. A stamper comprising a substrate and a plurality of protrusions having different heights formed on one of the surfaces of said substrate, wherein the protrusions of larger height have a stack structure of at least two layers of at least two types of materials.

2. A stamper according to Claim 1, wherein the protrusions of smaller height among said protrusions of different heights have a stack structure with a smaller number of layers than the the protrusions of larger height.

3. A stamper according to Claim 1, wherein the materials of the adjoining ones of the protrusions of larger height have different etching rates for a predetermined etching technique.

4. A stamper according to Claim 1, wherein the material of said substrate and the materials of said protrusions in contact with said substrate have different etching rates.

5. A stamper according to Claim 1, wherein the portions of said protrusions at the same height from the surface of said substrate are formed of the same type of material.

6. A stamper according to Claim 5, wherein the portions of said protrusions in steps of different heights are each formed of a single material.

7. A stamper fabricated by forming a film of a

covering material on the surface of an original stamper described in Claim 1 having a plurality of protrusions of different heights, and removing said original stamper, said stamper having said film of said covering material.

8. A stamper fabricated by forming a film of a first covering material on the surface of the original stamper according to Claim 1 having protrusions, forming a film of a second covering material on the surface of said film of said first material having the protrusions obtained by removing said original stamper, and removing said film of said first covering material, said stamper having said film of said second covering material.

9. A method of transferring a pattern with a stamper, comprising the steps of:

coating a resist on the surface of said stamper having protrusions;

connecting said resist to the surface of an object substrate by pressing said resist against the surface of said object substrate; and

forming said resist on the surface of said object substrate by removing said stamper.

10. A method of forming a structure using a pattern transferred by a stamper, comprising:

the step of forming a resist pattern having n physical steps (n: integer) on the surface of an object substrate by a stamper having a plurality of physical

steps; and

selected one of the step of etching the surface of at least a recessed area of said resist pattern where said object substrate is exposed, and the step of forming a first structural material on the surface of said recessed area of said resist pattern where said object substrate is exposed;

the step of forming at least a new area of said resist pattern where said object substrate is exposed, by removing the resist of said resist pattern to the height of the first physical step from the surface of said object substrate;

selected one of the step of etching the surface of at least a recessed area of said resist pattern where said object substrate is exposed, and the step of forming at least a new structural material on the surface of the recessed area of said resist pattern including the surface of the structural material formed the immediately preceding time; and

forming at least a new area where the object substrate is exposed, by removing the resist to the height of the second physical step from the surface of said object substrate of said resist pattern;

said step of forming at least a new area being repeated up to n times.

11. A method of forming a structure according to Claim 10,

wherein said step using a translucent

material as a structural material of the mth physical step ($m \leqq n$) includes the steps of:

forming said translucent material on the surface of said resist pattern and said area where said object substrate is exposed;

softening the surface of said resist in contact with said translucent material by radiating the light over the entire surface of said translucent material;

removing said softened area and said translucent material in contact with said softened area by developing said resist; and

forming at least a new area where said object substrate is exposed, by removing the resist to the height of the mth physical step of said resist pattern from said the surface of said object substrate.